

REMARKS

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**I. STATUS OF THE CLAIMS:**

Claims 1 – 20 are currently pending. Claims 4 and 16 have been cancelled.

Claims 3 and 15 have been amended in order to place those claims in better condition for allowance. Support for these amendments can be found at page 14, lines 2 – 9, and in the claims, of the original specification. No new matter has been added.

**II. PRIOR ART REJECTIONS**

The Office has rejected claims 1 – 2, 6 – 8, 12 – 14, and 18 – 19 under 35 U.S.C. § 103(a) as being unpatentable over US 6,090,089 (Tsuji) in view of US 5,269,213 (Murakami) and US 4,327,730 (Sorensen). Specifically, the Office asserts that (1) that Tsuji teaches elevated lands in the traverse direction of the topsheet; (2) Murakami teaches the use of passageways (i.e., channels created by raised ribs that are parallel to one another) in the machine direction of the topsheet; and (3) Sorensen teaches the use of elevations (i.e., round protuberances) that are 4  $\mu$ m to 90  $\mu$ m in height. The Office subsequently concludes that the elevated lands of Tsuji could be modified in view of Murakami so that they are in the machine direction, and further modified in view of Sorensen so that their difference in height is from 4 to 90  $\mu$ m.

The Office has also rejected claims 3 – 5, 9 – 11, 15 – 17, and 20 under 35 U.S.C. § 103(a) as being unpatentable over US 6,090,089 (Tsuji) in view of US 5,269,213 (Murakami) and US 4,327,730 (Sorensen), and further in view of US 2,304,632 (Faelten). Specifically, the Office asserts that Faelten teaches the application of ridges or waves to a

surface to provide good skin contact. The Office then concludes that the elevated lands of Tsuji could be modified in view of Faelten to enhance skin contact.

**A. The Claimed Invention:**

The claimed invention is directed to an absorbent article comprising a topsheet that, among other features, has stroking direction (SD) lands and traverse direction (TD) lands, wherein the SD lands are raised with respect to the TD lands by a distance of about 15  $\mu\text{m}$  to about 145  $\mu\text{m}$ . Applicants have discovered that constructing a vacuum formed topsheet with raised SD lands provides the topsheet with an improved silky tactile impression (i.e., the topsheet feels silky to the consumer).

The distance by which the SD land is raised with respect to the TD land is critical to achieving the desired silky tactile impression. Applicants have discovered that if this distance is less than about 15  $\mu\text{m}$ , the distance is not sufficient to create tactile impression. On the other hand, if the distance is greater than about 145  $\mu\text{m}$ , then the raised lands can be felt individually, and thus do not create a silky impression. Thus, the distance by which the SD land is raised with respect to the TD land must be between 15 and 145  $\mu\text{m}$  to create a silky tactile impression.

Applicants have also discovered that micro-ridges can be added to the raised lands described above to further enhance silky tactile impression. The height of these micro-ridges is from about 5 to about 75  $\mu\text{m}$  and are spaced about 25 to about 250  $\mu\text{m}$  apart.

**B. PRIOR ART REFERENCES****1. US 6,090,089 (Tsuji)**

Tsuji teaches a nonwoven topsheet having a plurality of parallel "ribs" that are positioned between, and elevated above, planar lands. These ribs are oriented parallel to each other and in the traverse direction. The topsheet is for use in an absorbent article, and, according to Tsuji, the ribs of the topsheet are intended to contact the user's skin, while the planar lands remain spaced from the skin of the wearer to create aeration channels to alleviate the possibility that the wearer might suffer from insult or stuffiness. In order to achieve this fluid flow, the distance from the ribs to the planar lands must be from 200  $\mu\text{m}$  to 2000  $\mu\text{m}$ .

**2. US 5,269,213 (Murakami)**

Murakami teaches thermoplastic resin topsheet having a first set of ribs overlaying a second set of ribs, wherein the first set of ribs is elevated with respect to the second set of ribs so that a groove is created between the first and second sets of ribs. The topsheet is for use in absorbent articles and, according to Murakami, as a consequence of the above-mentioned grooves, bodily fluid that is discharged from the wearer onto the topsheet "rapidly flows along the respective grooves" and spreads to the longitudinally opposite ends thereof. In order to achieve this rapid flow, the height of the first set of ribs with respect to the second set of ribs is 200 to 3000  $\mu\text{m}$ .

**3. US 4,327,730 (Sorensen)**

Sorensen teaches a disposable diaper having a topsheet constructed from a thermoplastic film. The topsheet is texturized with a plurality of "nubbles" (i.e., small round protuberances). These nubbles, which have a height of 4 – 84  $\mu\text{m}$ , purportedly reduce the plastic feel and impression of the topsheet.

**4. US 2,304,632 (Faelten)**

Faelten teaches the incorporation of ridges on the surface of an article constructed of molded cellulose acetate and polystyrene in order to produce a non-slip surface on that article. Faelten exemplifies such articles as combs, pencils, fountain pens, knobs, handles, and the like. In order to achieve this non-slip surface, the ridges are raised to a 1/75 to 1/100 of an inch (254 to 330  $\mu\text{m}$ ).

**C. ARGUMENTS****1. The proposed modification of Tsuji and Murakami in view of Sorensen would render the references unsatisfactory for their intended purpose.**

The proposed modification of Tsuji and Murakami in view of Sorensen, i.e., changing the height of the raised ribs from 200 – 3000  $\mu\text{m}$  to 15 – 145  $\mu\text{m}$ , would render these disclosures unsatisfactory for their intended purposes. According to MPEP 2145, if the proposed modification of the prior art renders its teaching unsatisfactory for its intended use, or changes its principle of operation, the teachings of the references are not sufficient to render the claims *prima facie* obvious.

As stated previously, the raised ribs of Tsuji or Murakami are intended to channel fluid flow away from the skin of the wearer. In order to achieve this goal, it is necessary that the channels be large enough and have a sufficient capacity to rapidly transport bodily fluids away from the wearer as they are discharged from the user. In order to achieve this purpose, the ribs that create the channels must be from 200 – 3000  $\mu\text{m}$  in height. This purpose would be frustrated, if not completely destroyed, if the ribs were raised by height of only 15 to 145  $\mu\text{m}$ . Since such a modification would render the topsheets of Tsuji and Murakami unsatisfactory for their intended purpose of transporting fluids, these references cannot properly support a finding of *prima facie* obvious.

In contrast to the teachings of Tsuji and Murakami, which are directed to fluid flow, the raised lands of the claimed invention are designed to achieve a silky tactile impression. A tactile impression is also purportedly achieved by the nubbles of Sorensen, which have a height of 4 – 84  $\mu\text{m}$ . Applicants also note, as stated above, that increasing the height of the raised land of the claimed invention to the distances required by Tsuji and Murakami would destroy the silky tactile impressions of the topsheet, because each individual raised land could be felt by the wearer. Thus, the goals of fluid flow and tactile impression are clearly incompatible with respect to the height of a raised land.

For at least these reasons, the claims of the claimed invention are not made obvious by the combination of Tsuji in view of Murakami and Sorensen. The Office's rejection on this ground is therefore respectfully traversed.

2. **With regards to claims 3, 5, 9 – 11, 15, 17, and 20, Tsuji, Murakami, Soresen, and Faelten do not, either individually or in combination, teach each and every element of the claimed invention.**

Faelten fails to disclose a surface having a plurality of microridges with a center to center spacing of about 50  $\mu\text{m}$  to about 150  $\mu\text{m}$  and a height of about 5  $\mu\text{m}$  to about 75  $\mu\text{m}$ . It is incontrovertible that to establish a *prima facie* showing of obviousness, the cited reference, or combination of references, must include each and every limitation of the claimed invention. MPEP 2143. Here, the cited reference clearly fails to show at least one element of the currently amended claims.

As indicated above, the Office cites Faelten as teaching that ridges may be applied to a surface to enhance skin contact. Applicants respectfully point out that Faelten does *not* teach raised ridges for enhanced skin contact, but instead teaches raised ridges to produce a surface “which is very easy to grasp, without the tendency to skip ...” That is, Faelten teaches the use of ridges having a height of 254 to 330 to provide a non-slip surface to articles – such as combs, pencils, fountain pens, knobs, and handles – which are made of molded cellulose acetate and polystyrene.

In contrast to the ridges taught by Faelten, the microridges of the claimed invention, which are only about 5  $\mu\text{m}$  to about 75  $\mu\text{m}$  in height, enhance a silky tactile impression. That is, instead of being coarse and non-slip, the topsheet of the claimed invention is smooth, resembling silk in texture.

In view of the actual disclosure of Faelten, it is clear that there is no teaching or even suggestion of microridges. Tsuji, Murakami, and Soresen likewise fail to teach or

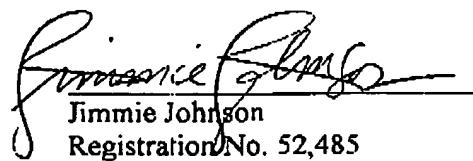
suggest the use of microridges. Since all of the claimed elements are not present in any of the cited references, either alone or in combination, the Office has not established a *prima facie* case of obviousness. The Office's rejection of the claims on this ground is therefore respectfully traversed.

#### IV. CONCLUSION

In view of the proposed claim amendments and the arguments presented above, the present application is believed to be in condition for allowance and an early notice thereof is earnestly solicited. The Office is invited to contact the undersigned counsel in order to further the prosecution of this application in any way.

Respectfully submitted,

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